

We claim:

1. A dry kiln system for drying a stack of lumber, comprising:
at least one kiln chamber defining a chamber interior space capable of receiving a
5 stack of lumber for drying;
a chamber heating source capable of providing heated air;
an air moving device capable of circulating heated air supplied to the chamber
interior space;
a condensation collection device for collecting liquid in the chamber interior
10 space; and
an evaporation system for evaporating collected liquid from the chamber interior
space.
2. The dry kiln system of claim 1, wherein:
15 the condensation collection device is an evaporator coil in the chamber interior
space.
3. The kiln system of claim 1, further comprising:
a drain system to receive liquid from the condensation device.
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4. The dry kiln system of claim 3, wherein the condensation collection device directs
liquid to a liquid drainage system.

5. The dry kiln system of claim 1, wherein:
the condensation device comprises a liquid contact surface.

5 6. The dry kiln system of claim 5, wherein:
the dry kiln system further comprises a liquid drainage system, and
said the liquid contact surface directs liquid toward the evaporation system.

7. The dry kiln system of claim 5, wherein the liquid contact surface slopes to a
10 liquid drain system, utilizing gravity to direct liquid toward a liquid drainage system.

8. The dry kiln system of claim 5, wherein the liquid contact surface is a sloping
floor of the chamber interior space.

15 9. The dry kiln system of claim 1, wherein:
the heating source is further capable of providing heat to the evaporation system
to effect evaporation of liquid collected by the condensation collection device.

10. The dry kiln system of claim 1, wherein:
20 the evaporation system comprises a liquid holding tank and an evaporation device
heating source, wherein the heating source effects evaporation of the liquid in the holding
tank.

11. The dry kiln system of claim 1, wherein:

the evaporation device comprises a liquid holding tank, and heat from the chamber heating source is directed to the liquid holding tank to effect evaporation of the liquid in the holding tank.

12. The dry kiln system of claim 1, wherein the evaporation device comprises a pump to direct collected liquid into the kiln chamber for heating to effect evaporation.

13. The dry kiln system of claim 12, wherein the pump directs liquid to a floor surface of the chamber interior space for heating to effect evaporation.

14. The dry kiln system of claim 1, further comprising a plurality of kiln chambers defining a chamber interior space capable of receiving a stack of lumber for drying.

15. The dry kiln system of claim 14, wherein the system further comprises a liquid drain system capable of receiving liquid from each kiln chamber and capable of delivering said liquid to the evaporation system.

16. The dry kiln system of claim 14, wherein collected liquid from said plurality of kiln chambers is directed to a common pump chamber for delivery to an evaporation system.

17. The dry kiln system of claim 16, wherein the evaporation system comprises a liquid holding tank with a heat source to effect evaporation.

5 18. The dry kiln system of claim 17, wherein the evaporation system comprises a surface of a kiln chamber interior space of at least one kiln in the kiln system.

19. The dry kiln of claim 15 wherein the evaporation system directs the liquid to a kiln chamber and a holding tank.

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20. A process for drying lumber, comprising:
providing a kiln system that comprises

a chamber interior space for receiving a quantity of stacked lumber;

a chamber heating source for heating the air within the structure for drying

15 the lumber; and

a condensation collection device for collecting liquid in the chamber interior space;

placing a quantity of stacked wet lumber within the chamber interior surface;

circulating heated air within the chamber interior surface and about the stacked

20 lumber to dry the lumber and cause liquid in the wet lumber to escape as vapor;

collecting liquid from condensed vapor in the chamber interior surface; and

evaporating said liquid to prevent effluent liquid in the process for drying lumber.

21. The process of claim 20, wherein collecting and evaporating steps are effected by:
providing a pump chamber and an evaporation unit;
pumping the collected liquid to the evaporating unit to effect evaporation.

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22. The process of claim 20, wherein the evaporation unit is a liquid storage tank
downstream from the pump chamber.

23. The process of claim 20, wherein the evaporation unit is a surface of a chamber
10 interior space.

24. The process of claim 21, wherein the pump chamber directs liquid collected from
more than one chamber interior space.

15 25. The process of claim 24, wherein the pump chamber directs collected liquid to
more than one evaporation unit